MPS-3 Control Electronics Unit

Operating Instructions

The Meyer Sound MPS-3 is an active signal processor designed for use with Meyer Sound MPS-305 and MPS-355 loudspeakers. It is a stereo device, and occupies a single $1^3/_4$ -inch rack space. The functions of the MPS-3 are:

- **Loudspeaker frequency and phase response alignment**
- **SpeakerSense™ driver protection**
- **Low frequency cut for system equalization**

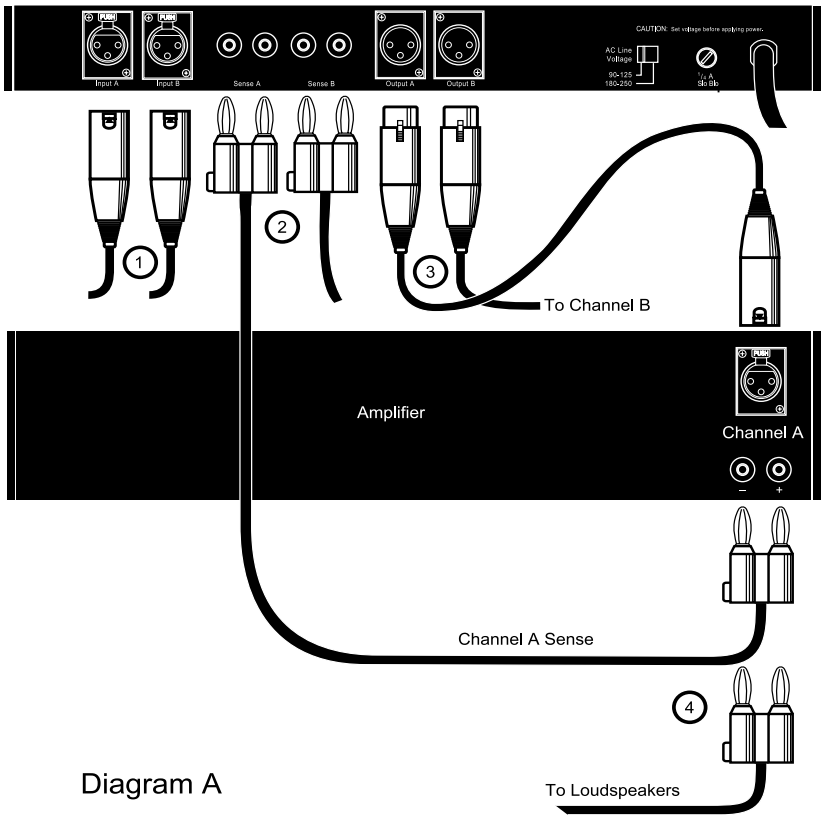

Diagram A

Connections

The MPS-3 operates at line level, and is designed to be the last component in the signal chain before the power amplifier. Connections to the MPS-3 should be made according to diagram A.

1. Signal **Inputs** to the MPS-3 should be balanced XLR male and, for best signal-to-noise ratio, have an average input level of at least 1 volt RMS. The MPS-3 will accept peak inputs of up to +26 dBV.

2. **SpeakerSense** connections are made between the output of the power amplifier and the MPS-3 **Sense** inputs. This connection **must** be made in order for the **SpeakerSense** driver protection circuitry to operate properly. The power amplifier should provide a gain of 26 dB (±6 dB) for optimum performance.

Note. Polarity of the **Sense** connections does not matter, however it is important to verify that these connections are consistent from **Sense** input to amp output. (i.e. Channel A **Sense** to Amp Channel A output.)

3. Signal **Outputs** from the MPS-3 are active balanced, at nominal +4 dBV operating level. The connectors may be wired balanced or unbalanced, with maximum output levels before clipping of +26 dBV balanced, +20 dBV unbalanced.

4. Connections between the power amplifier outputs and the Meyer Sound MPS-305 or MPS-355 loudspeakers should be made according to the instructions for the loudspeaker. These connections **must be verified for correct polarity.**

Operation

Once all connections have been made and verified, the system is ready to operate.

- The MPS-3 **Output Level** controls should be set at minimum.
- Switch on AC to the MPS-3 first, then to the power amplifier.
- Set power amplifier level controls (if any) to maximum.
- Advance the MPS-3 **Output Level** controls to set system sensitivities. If the system is not operating properly, recheck all connections

Note. The **Output Level** control markings are merely a visual aid and should not be used to balance two systems. The output of the MPS-3 is calibrated only when the **Output Level** control is fully clockwise.

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AC Voltage Selector and Fuse

The MPS-3 must have the correct voltage setting and fuse for the AC power source in your area. To change the AC voltage setting, **first unplug the AC power cord**. Using a small flat-blade screwdriver, move the slide switch to the appropriate position as indicated by the adjacent panel legend.

Primary protection for the MPS-3 is provided by a $1\frac{1}{4}$ A SloBlo fuse located in a receptacle adjacent to the AC cord. Before examining or replacing the fuse, **first unplug the AC power cord.** To replace the fuse, insert a flat-blade screwdriver in the fuse cap and gently turn counter-clockwise. The fuse will spring from its socket. Replace only with a fuse of the type and rating specified by Meyer Sound.

Output Level Controls and Mono Switch

The **Output Level Controls** regulate the gain of each channel of the MPS-3. Their range is from off to 0 dB, with -6 dB gain at the center position.

When the **Mono Switch** is engaged (in), the two input channels are summed and routed to both outputs. While operating in mono, each output's level is still controlled by its respective **Level Control**. When the **Mono Switch** is disengaged (out), the MPS-3 operates in stereo.

Lo Cut Switch

The **Lo Cut** switch on the MPS-3 front panel introduces a 6 dB/octave high pass filter at 160 Hz on **both** channels. This filter is designed to reduce any low frequency emphasis caused by corner placement of the MPS-305 or MPS-355 loudspeakers, but can also be used to compensate for the proximity effect of cardioid microphones. The **Lo Cut** switch is also useful for preventing speaker overload when using MPS-305 loudspeakers.

SpeakerSense™ Driver Protection

Through the **Sense** connections between the MPS-3 and the power amplifier, the **SpeakerSense** circuitry of the MPS-3 continuously monitors the voltages across the loudspeaker drivers. If the amplifier ouput exceeds the safe operating limits of the drivers, either an **RMS limiter** or a **Peak limiter** will be automatically activated, holding down the power level of the MPS-3 output.

The operation of the SpeakerSense circuitry is indicated by a single, bi-colored **Sense/Limit** indicator LED for each channel.

The function of the **Sense/Limit** indicator is as follows:

- **Signal Presence Indicator**. The **Sense/Limit** indicator lights **green** to indicate signal presence, and verifies that the **Sense** connections between the amplifier and the MPS-3 are made. The indicator will flicker green at low signal levels.
- **Limit Indicator**. The **Sense/Limit** indicator lights **red** whenever the limiter is activated. A moderate amount of red flickering of this indicator is acceptable. The RMS limiter has an attack time of 60 msec, and is designed to protect the system in sustained high level use.

Limiter Operation

To verify limiter operation in the field:

- Disconnect loudspeakers, leaving the amplifier and the MPS-3 in their standard connection configuration.
- If your amplifier requires a load, use resistive loads sufficient to dissipate the full power of the amplifier.
- Turn on both the MPS-3 and the amplifier.
- Switch the **Lo Cut** out.
- Supply an input to the MPS-3, preferably a sinewave oscillator. If you do not have an oscillator, use a microphone and a mixer to produce a line-level signal.
- Set the input frequency of the oscillator to 1 kHz, or whistle into the microphone.
- Bring up the **Output Level** until you see the **Sense/Limit** indicator light **red**. Since the indicator will light red **only** if the limiter actually operates, it provides a positive indication that the limiter is functioning.

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Specifications

Input Type	Balanced (active), 24k ohms
Output Type	Balanced active push-pull, pin 1 to chassis = 500Ω
Maximum Input/Output Level	
Balanced	+26 dBV
Unbalanced	+20 dBV
Hum and Noise	-90 dBV ("A" weighted)
Dynamic Range	110 dB
Sense Inputs	10k ohm true differential
Driver Protection Circuitry	RMS limiter, 60 msec integration time, LF sliding filter
Indicators	
Sense/Limit	Bi-color LED (green/red)
Power	Green LED
Front Panel Controls	Rotary Output Level controls, AC on/off switch, Mono switch, Lo Cut switch
Connectors	
Inputs and Outputs	XLR-type (A-3)
Sense Inputs	Banana jacks
Power	120V AC / 240V AC rear panel selectable
Physical Dimensions	19" W x 1¾" H x 7¾" D
Weight	7 lbs (3.1 kg)

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